
MODULE 5

CLOSURE

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Introduction to Module 5: Closure

This module provides guidance on closure requirements for hazardous and radioactive mixed waste container storage areas at DOE facilities. The regulatory requirements for container storage areas at both interim status and permitted facilities have remained unchanged since 1981. When the Subpart I regulations were promulgated on May 19, 1980, no specific closure standards were promulgated for permitted or interim status container storage facilities. In 1981 (46 FR 2831), EPA stated that the closure requirements found in Part 265, Subpart G were applicable to interim status container storage facilities. To clarify their position and to be consistent with the existing closure requirements of tanks (Subpart J), EPA promulgated a closure standard applicable to permitted container storage areas in Part 264. As of April 1992, EPA has not incorporated the same specific requirements in Part 265.

Waste management personnel should use this module to:

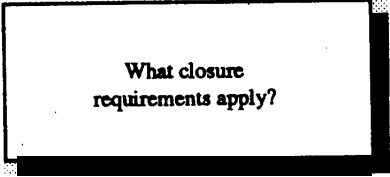
- ensure that a closure plan has been prepared and that it contains all of the necessary elements;
- determine when they must begin closure of a container storage area and when removal of inventory and final closure must be completed; and
- certify, when required, that closure is conducted in accordance with the approved closure plan.

The following flowchart and accompanying narrative discussion guides you step-by-step through the applicable closure requirements for container storage areas.

OVERVIEW OF MODULE 5: CLOSURE

CRITICAL ISSUES

SUBMODULES CONTAINING GUIDANCE
ON CRITICAL ISSUES

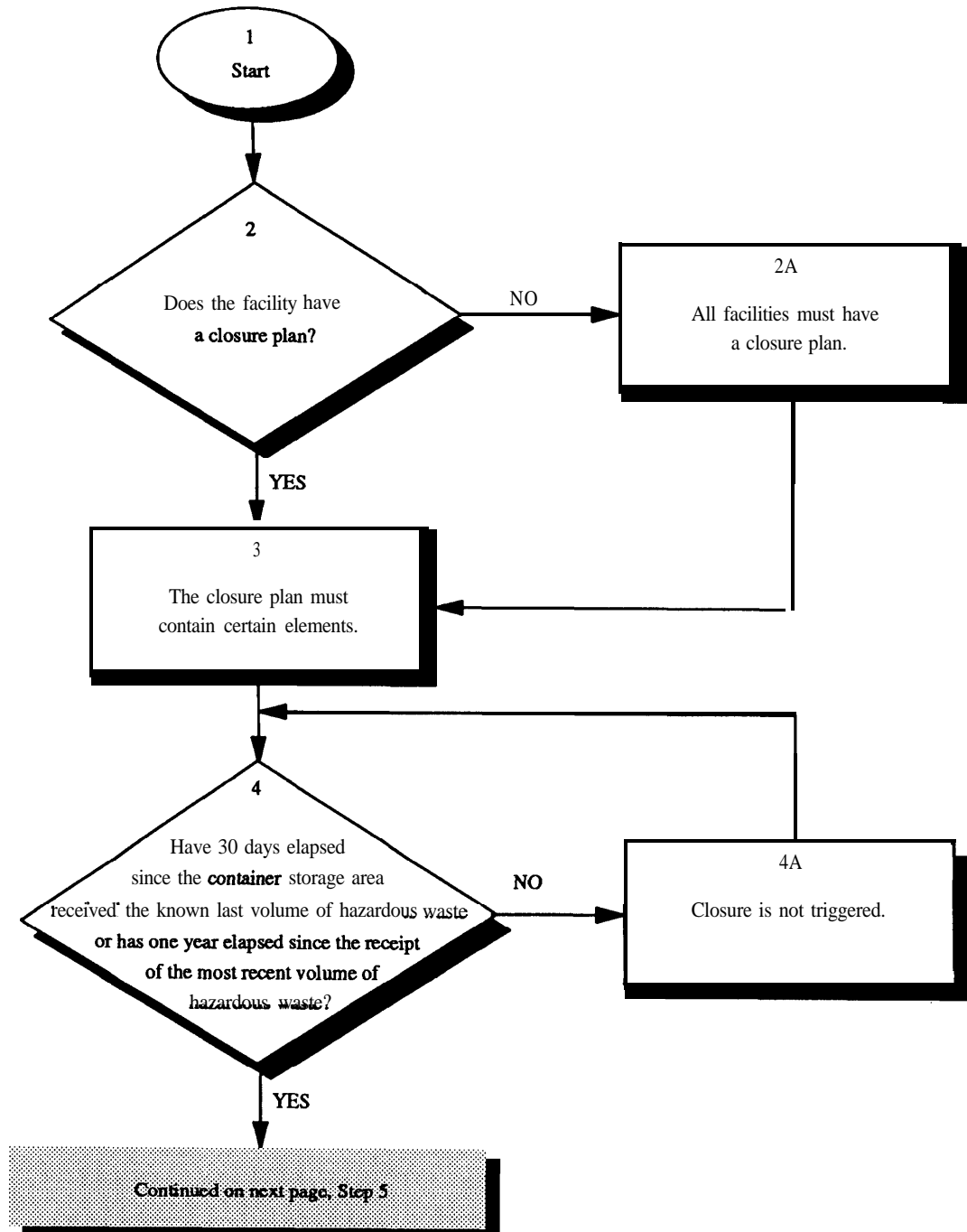


What closure
requirements apply?

MODULE 5

Module 5: Flowchart

MODULE 5: CLOSURE OF CONTAINER STORAGE AREAS



MODULE 5: CLOSURE OF RCRA CONTAINER STORAGE AREAS

Step 1 Start.

Step 2 A closure plan is a detailed description of the activities necessary to close the container storage area at any time during its active life. A closure plan must be submitted as part of the RCRA Part B permit application.

Step 2A All permitted and interim status container storage areas must have a written closure plan as part of their operating requirements.

Step 3 The regulations do not specify any required format for a closure plan; however, at a minimum, a closure plan should include the following elements (40 CFR 264.112 and 265.112):

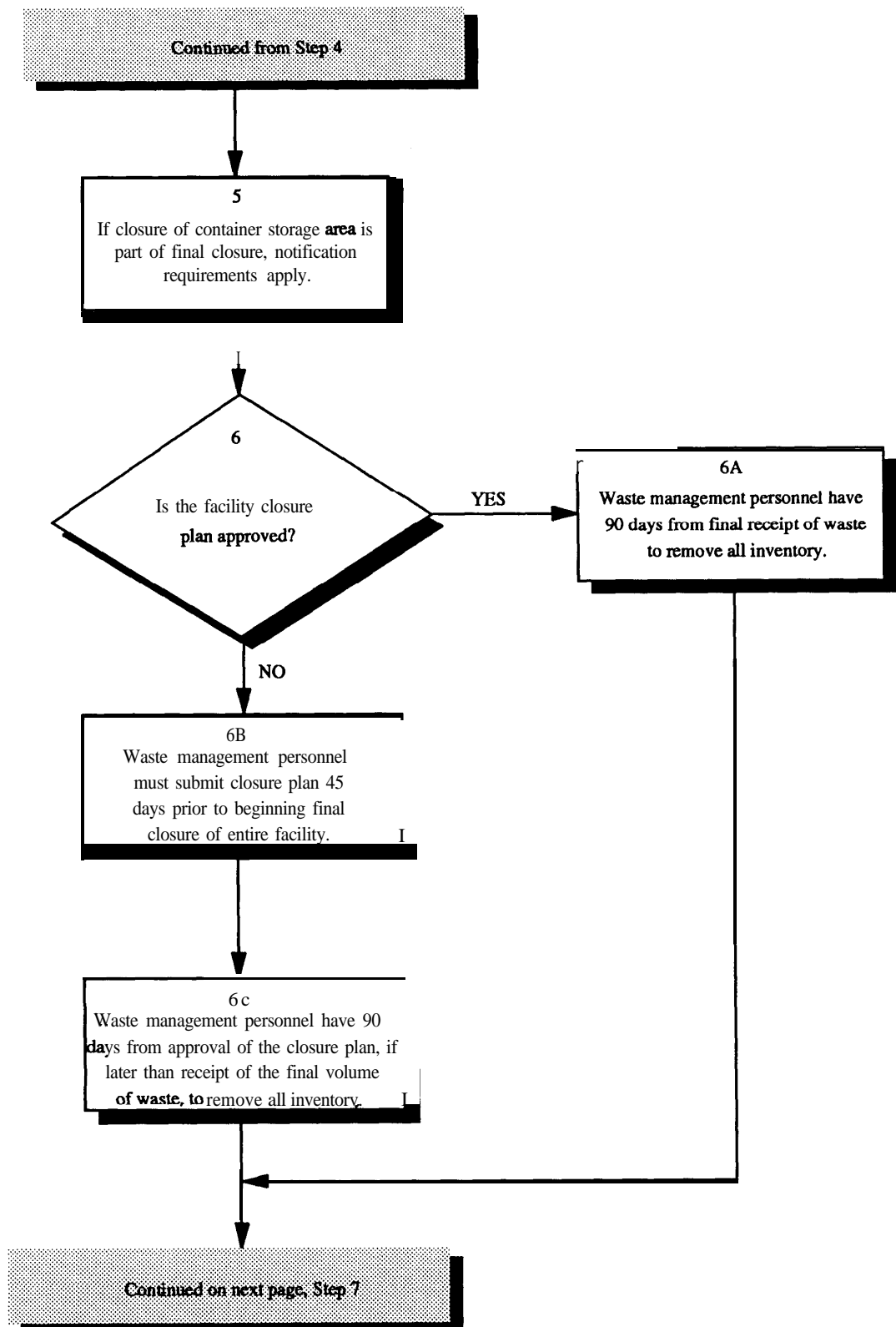
- a detailed description of the container storage area (e.g., location, size, containment system design, security systems);
- a description of other units and facility activities if the container storage area is only one component of a larger treatment, storage, and disposal facility;
- estimates of the maximum number of containers and other hazardous wastes in the container storage area to be removed at closure;
- procedures for removing or decontaminating hazardous waste residues, waste inventory pads, pallets, contaminated containment system components, equipment, structures, subsoils, and groundwater, etc.;
- a schedule of closure activities (including the expected year of closure for interim status facilities without approved closure plans); and
- a description of activities to be conducted to certify closure in accordance with the closure plan (40 CFR 264.115 and 265.115).

For additional details on the preparation of closure plans, see the references at the end of this submodule.

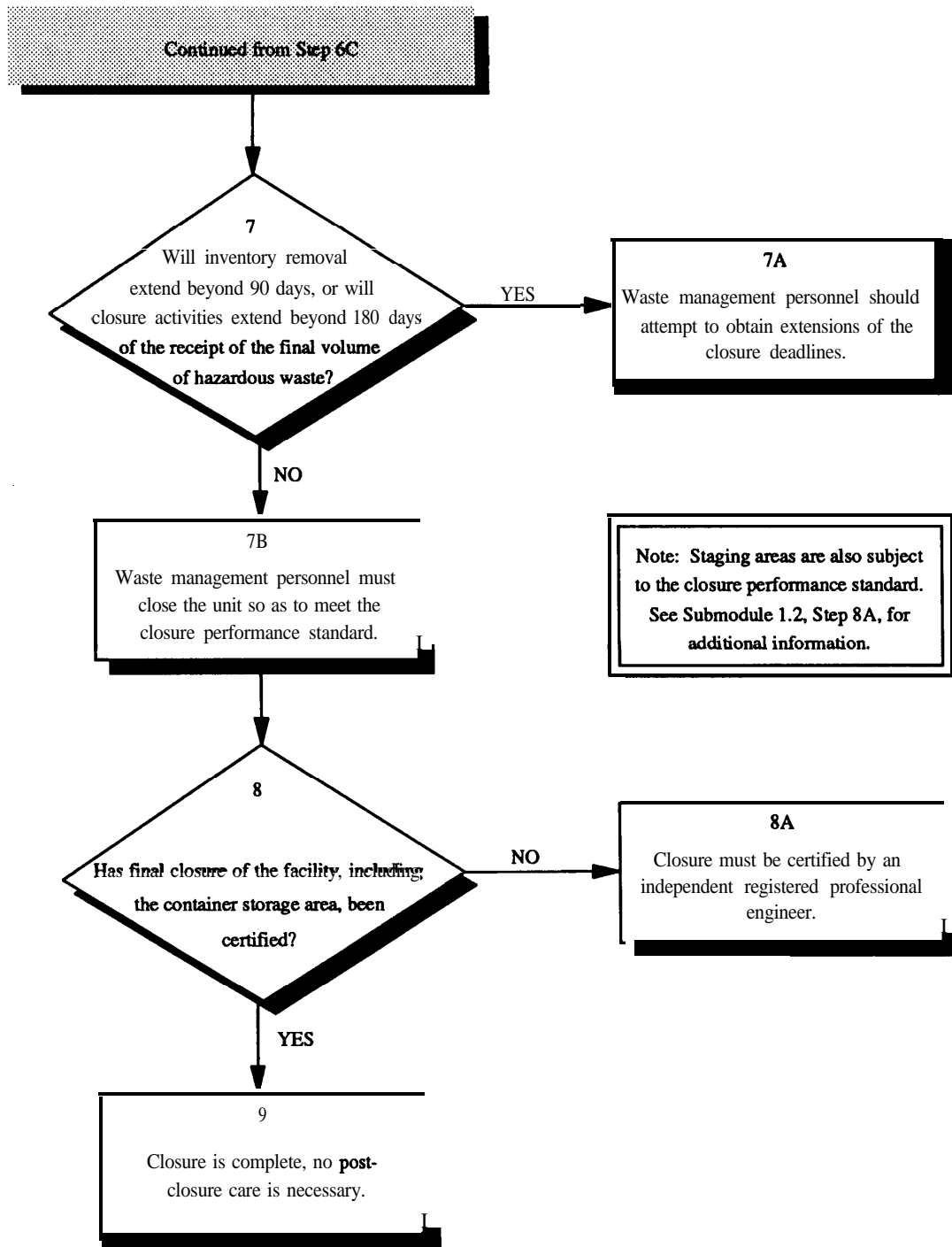
Step 4 The date on which waste management personnel expect to begin closure of a container storage area is defined as either (40 CFR 264.112 (d) and 265.112 (d)):

- 30 days after the container storage area receives the known last volume of hazardous or radioactive mixed waste; or
- if there is a reasonable probability that the unit will receive additional hazardous or radioactive mixed waste, one year after the receipt of the most recent volume of such waste. If waste management personnel can demonstrate to the Regional Administrator or State Director that the container storage area has additional capacity to receive waste and that steps have been taken to protect human health and the environment, the container storage area may obtain an extension of the one-year limit.

Step 4A If the conditions outlined in Step 4 are not met, closure is not triggered.



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- Step 5** If closure of the container storage area is part of final closure of a larger facility, waste management personnel must notify the Regional Administrator or State Director 45 days before the day they intend to begin final closure of the facility that contains the container storage area. If the other portions of the facility will continue to operate after closure of the container storage area, waste management personnel may begin closure of the container storage area (i.e., remove hazardous wastes and decontaminated or dismantle equipment) without any notification; however, all activities must be undertaken in accordance with the approved closure plan.
- Step 6** The deadline for removing the inventory of hazardous waste from the container storage is dependent upon whether the facility has an approved closure plan.
- Step 6A** If the closure plan for the container storage area has already been approved, waste management personnel have 90 days from the final receipt of hazardous or radioactive mixed waste to complete removal of all hazardous waste inventory from the container storage area. This generally involves sending all containers and their contents off-site; however, if the containers are to be reused or recycled, waste management personnel may empty the containers, stabilize the waste and handle it separately from the containers. (See also step 7A below for a discussion of possible extensions to this deadline).
- Step 6B** If the container storage area is operating under interim status and does not have an approved closure plan, waste management personnel must submit the closure plan 45 days prior to the beginning of final closure of the entire facility. If other portions of the facility will continue to operate after closure of the container storage area within the facility, waste management personnel are not required to submit a closure plan.
- Step 6C** If the closure plan has not been approved by the time the final volume of waste has been received, waste management personnel have 90 days from the approval of the closure plan to remove all inventory from the facility. However, if the facility is not yet undergoing final closure and does not yet have an approved closure plan, it may be prudent to initiate closure activities and dispose of hazardous or radioactive mixed waste inventory prior to obtaining closure plan approval. This generally involves sending all containers and their contents off-site. In some cases, however, waste management personnel may empty the containers, stabilize the waste and handle it separately from the containers. (See also step 7A below for a discussion of possible extensions to this deadline).



Step 7 All contaminated containment system components (e.g., bases, structures, and equipment), soils, and subsoils, must be either removed or decontaminated within 180 days of the receipt of the final volume of hazardous or radioactive mixed waste. For interim status facilities without approved closure plans, these deadlines begin upon approval of the closure plan, if that is later than the final receipt of waste (40 CFR 265.113 (b)).

Step 7A These closure deadlines may be extended if waste management personnel can demonstrate that:

- the closure activities will of necessity take longer than the allowable time to complete; or
- the hazardous container storage area has the capacity to receive additional hazardous wastes; and
- there is reasonable likelihood that operation of the container storage area will recommence within one year; and
- closure of the container storage area would be incompatible with continued operation of the site.

If, at the time waste management personnel are developing a closure plan, they anticipate that they will need to exceed the 90- or 180-day deadline(s), they should include in the closure plan a justification for an extension of the deadline(s).

Step 7B The container storage area must be closed in such a manner that it meets the closure performance standard of 40 CFR 264.111 or 265.111. Proper closure will minimize the need for further maintenance as well as control, minimize, or eliminate releases from the unit after closure. Waste management personnel must repeatedly clean, wash, or rinse facility structures and equipment until monitoring samples of the last rinse water satisfy the closure performance standard. Residuals resulting from this activity should be treated as hazardous wastes unless waste management personnel can demonstrate that they are not hazardous waste. The regulations also require owners or operators to decontaminate all contaminated equipment, tools, clothing, supplies, etc., involved in operating, maintaining, and closing the unit.

If bases and other container system structures or equipment cannot be decontaminated, they must be removed. Soils underlying the container storage area should be tested at this point to determine the extent of contamination. Any soils which have been determined to contain contaminants in excess of the exposure limits specified in the closure plan must be removed. For more detailed information on how to conduct closure activities at container storage areas, waste management personnel should consult the references at the end of this submodule.

NOTE: Staging areas at which wastes are accumulated or stored for less than 90 days are subject to the interim status closure performance standard (40 CFR 265.111) and other requirements. See Submodule 1.2, Step 8A for more information on these requirements.

Step 8 Following completion of final closure of a facility, waste management personnel must certify that closure activities have been conducted in accordance with the approved closure plan. If a container storage area has been closed, but other portions of the facility remain in operation, closure certification of the container storage area is not required until final closure.

Step 8A The certification must be conducted and signed by an independent registered professional engineer. EPA defines an independent engineer as one who is not a direct employee (i.e., not on the payroll) of DOE or its operating contractor. The closure certification must be sent, by registered mail, to the Regional Administrator or State Director within 60 days of the completion of final closure of the entire facility. Supporting documentation of the certification must be made

available to the Regional Administrator or State Director upon request.

Step 9

Upon successful completion and certification of closure of the container storage area, no post-closure care is required. If DOE cannot certify closure, waste management personnel must apply for a post-closure permit and conduct post-closure care.

Post-closure care is unlikely to apply to containers or container storage areas because all container storage areas must be clean closed (40 CFR 264.178). Any releases from containers or container storage areas that preclude clean closure must be addressed through corrective action (see Submodule 4.4, "Corrective Action").

REFERENCES FOR MODULE 5

- 1) *Closure of Hazardous and Mixed Radioactive Waste Management Units at DOE Facilities*, U.S. Department of Energy, Office of Environmental Guidance, RCRA/CERCLA Division, June 1990.
- 2) *Final Report/Guidance Manual: Cost Estimates for Closure and Post-Closure Plans (Subparts G and H) Volume I - Treatment and Storage Facilities and Volume II - Unit Costs*, U.S. Environmental Protection Agency, OSWER Directive No. 9476.00-6, November 1987.
- 3) *Guidance on Stabilization and Closure of U.S. DOE Mixed and Low Level Radioactive Waste Disposal Facilities*, U.S. Department of Energy, DOE/LLW-82, June 1990.
- 4) *Guide for Decontaminating Buildings, Structures, and Equipment at Superfund Sites*, U.S. Environmental Protection Agency, EPA/600/2-85-028, 1985.
- 5) *Handbook: Remedial Action at Waste Disposal Sites (Revised)*, U.S. Environmental Protection Agency, EPA/625/6-85-006, October 1985.
- 6) *RCRA Guidance Manual for Subpart G Closure and Post-Closure Care Standards and Subpart H Cost Estimating Requirements*, U.S. Environmental Protection Agency, EPA/580-SW-87-010, January 1987.
- 7) 40 CFR 264 and 265 Subpart G -- Closure and post-closure.
- 8) 40 CFR 264.178 -- Closure of container storage areas.
- 9) 40 CFR 265.113 (b) -- Closure; time allowed for closure.